

WHAT IS CLAIMED IS:

1. A device for irradiating a laser beam onto an amorphous silicon thin film formed on a substrate, the device comprising:

a stage mounting the substrate;

5 a laser oscillator for generating a laser beam;

a projection lens for focusing and guiding the laser beam onto the thin film;

a reflector for reflecting the laser beam guided onto the thin film;

a controller for controlling a position of the reflector; and

an absorber for absorbing the laser beam reflected by the reflector.

10 2. A method of manufacturing a thin film transistor using a laser irradiation device including a projection lens, the method comprising:

depositing an amorphous silicon thin film on a substrate;

irradiating a laser beam from the laser irradiation device onto the thin film through an exposure mask having a slit pattern to form a polysilicon layer after
15 preheating the projection lens ;

patterning the polysilicon layer to form a semiconductor layer;

depositing a first insulating layer on the semiconductor layer;

forming a gate electrode on the first insulating layer;

20 implanting impurities into the semiconductor layer to form source and drain regions;

depositing a second insulating layer on the gate electrode;

forming contact holes exposing the source and the drain regions in the first or the second insulating layers; and

25 forming source and drain electrodes respectively connected to the source and the drain regions through the contact holes.

3. The method of claim 2 wherein the polysilicon layer is formed by lateral sequential solidification.

4. The method of claim 2 further comprising:

forming a pixel electrode connected to the drain electrode.

30 5. The method of claim 4 wherein the pixel electrode comprises a transparent conductive material or a reflective conductive material.

6. A method of polycrystallizing an amorphous silicon thin film using a laser irradiation device including a projection lens, the method comprising:

depositing an amorphous silicon thin film on a substrate;

preheating the projection lens without irradiating a laser beam from the laser irradiation device onto the thin film; and

irradiating the laser beam from the laser irradiation device onto the thin film to be polycrystallized after the preheating.

7. The method of claim 6 wherein the laser beam from the laser irradiation device is reflected away from the thin film during the preheating.